

**Some Notes on the Bee Genus ANDRENA.**

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Several years ago the writer undertook to determine and label the bees contained in the collection of insects belonging to the University of Nebraska. After some preliminary work in the way of assorting and arranging the material at hand, and securing literature with which to do the naming, it was found that the large number of the species belonging to the genus *Andrena* in its broad sense could only be placed by the aid of some kind of synoptic key or table. Not being able to find such an aid in our entomological literature it was decided to construct one for the purpose.

This being decided upon, it was soon ascertained that the various authors who had established the already recognized and recorded species had used different characters upon which to base their descriptions. The use or choice of distinct characters by the various authors when describing their species made it very difficult for the writer when attempting to decide upon the principal features of the proposed table in order to make it as nearly a natural one as possible. After several vain attempts at employing structural characters for the separation of the main groups, at least, all efforts in this direction ceased, and such secondary characters as the presence or absence, length, abundance, color and arrangement of pubescence were employed instead. This choice was made necessary because, as stated above, the various authors when characterizing their new species had overlooked many of the structural characters now used in the limitation of forms.

While nothing like perfection is claimed for the present table as it now stands, it has been a great help to the writer in his attempts at placing the hundred or more forms belonging to the collection which he is working over. It is with this knowledge in mind that the table is offered to others who may be interested in our Andrenid bees. Later, after more of our species that are still undescribed have been determined and characterized, and when both sexes of some known species have been recognized, a new and better table can be constructed.

In describing bees of this group it would be well to employ such characters as punctuation of face, thorax and abdomen; the nature of the triangle (closure) at the base of the metathorax—whether bounded by a rim or by an impressed line; its surface, whether rough or smooth; shape and size of head and its attachments, as antennæ, tubercle at apex of clypeus, mandibles, etc.; form of abdomen, depression of apical portion of segments; any special characteristic of legs, as of tibiæ and tarsi; pubescence, length, abundance, arrangement, color, etc.; general color of wings, and indication of variation of form and size in cells, nervures and stigma; abundance and color of anal fimbria in the female; also the general color of the insect or of any portion of it. If all, or most, of these points are kept in mind when a new form is characterized, the difficulty of its recognition by others will be greatly lessened. It will also enable the would-be tabulator to construct his key on characters that are less artificial and therefore more constant than those employed here.

While working over the described American forms it was found that a few synonyms occur. In order to make the paper a trifle more complete there are added below:

*Andrena bicolor* (Amer. citations—not Fabr.) = *carlini* Ckll.

- " *fimbriata* Sm. = *americana* D. T.
- " *flavoclypeata* Sm. = *bipunctata* Cress.
- " *simulata* Prov. = *canadensis* D. T.
- " *clypeata* Sm. = *clypeolata* D. T.
- " *laticeps* Prov. = *Provancheri* D. T.
- " *serotina* Rob. = *Robertsonii* D. T.
- " *scutellaris* Rob. = *scutellata* D. T.
- " *hirticeps* Rob. (not Sm.) = *carlini* Ckll.
- " *Perezi* Rob. = *erythrogaster* Ashm.

#### A Preliminary Table for the Separation of the Species of *Andrena* of America north of Mexico.

Normally with three submarginal cells in anterior wings—( <i>Andrena</i> , <i>Tachandrena</i> , <i>Opandrena</i> , <i>Ptilanerena</i> , <i>Pterandrena</i> and <i>Iomelissa</i> ).....	1.
Normally with but two submarginal cells in anterior wings...( <i>Parandrena</i> ) 229:	
1. Insect with the abdomen above more or less markedly rufous, ferruginous, orange or testaceous.....	2.
Insect with the abdomen not at all rufous, ferruginous or orange, or if testaceous, only slightly so at extreme apex of segments.....	18.
2. With the light color chiefly ferruginous or rufous.....	3.
With the light color orange, yellowish or testaceous—basal, apical or both..	16.

3. Pubescence black..... ***prima*** Casad.  
 Pubescence gray or fulvous..... 4.  
 4. Wings clear or only faintly clouded..... 5.  
 Wings rather strongly clouded apically..... 10.  
 5. Enclosure of metathorax bounded by a salient rim, the surface more or less  
     strongly longitudinally ridged..... 6.  
 Enclosure indistinctly marked, the surface rather finely granular..... 7.  
 6. Abdomen red, except sides of 1st and 2nd segments—both sexes.

***spheecodina*** Casad. & Ckll.

Abdomen of female with the apical margins of the segments and apical seg-  
 ments more or less black, that of male black, save occasionally with  
 indications of red on the ventral surface of 1 and 2..... ***Mariae*** Rob.  
 7. Head and thorax black, or varied with yellow, finely granular. Insects  
     large or of moderate size..... 8.  
 Head and thorax with bluish and greenish reflections. Insects rather small.

***illinoiensis*** form ***bicolor*** Rob.

8. Insects of moderate size (about 10 mm.)..... 9.  
 Insects rather large (12 mm. or over)..... 10.  
 9. Abdomen of female red, sometimes with base of apical segments broadly  
     black and with their apices testaceous; the males similar, but fre-  
     quently entirely black. Wings hyaline, apical margins faintly clouded.

***erythrogaster*** Ashm.

Abdomen of female with base of all segments broadly black. Wings with a  
     strong reddish yellow tinge..... ***rhodura*** Ckll.

10. Clypeus dark in both sexes..... 11.  
 Clypeus not dark, at least in the ♂..... 12.  
 11. First segment of abdomen very feebly and sparsely punctured.

***Jessiae*** Ckll.

First segment of abdomen strongly punctured..... ***argemonis*** Ckll.

12. Dorsum of thorax honey-yellow..... ***mellea*** Crss.  
 Thorax entirely black..... 13.  
 13. Pubescence on head and thorax pale yellow or fulvous..... 14.  
 Pubescence on head and thorax dull white..... 15.  
 14. Pubescence fulvous; basal joints of antennae more or less strongly ferrugi-  
     nous..... ***prunorum*** Ckll.  
 Pubescence pale yellowish; antennae entirely dark.

***prunorum*** sub. sp. ***Gillettei*** Ckll.

15. Second segment of abdomen provided with a black band... ***Casadei*** Ckll.  
 Second segment of abdomen with only a black spot on each side.

***pascoensis*** Ckll.

16. With the light color orange and confined to the apex and base of segments.

***aureocincta*** Ckll.

The light color reddish or yellowish testaceous..... 17.  
 17. Larger (13.5 mm.), the pubescence rather long and copious, yellowish. Apex  
     of segments yellowish testaceous. Venter honey yellow.

***multifasciata*** Ckll.

18. Body of insect altogether or in part blue, green or brassy (æneous)..... 19.  
 Body of insect black, with or without yellow face marks..... 35.  
 19. Insect with head and thorax concolorous with abdomen ..... 25.  
 Insect with head and thorax differently colored from abdomen ..... 20.  
 20. Head and thorax black, abdomen more or less bronzy, green or blue. .... 22.  
 Head and thorax greenish..... 21.  
 21. Abdomen ferruginous..... **illinoiensis** form **bicolor** Rob.  
 Abdomen with a faint greenish lustre..... 24.  
 22. Abdomen with a brassy tinge..... 23.  
 22. Segments 2-5 with their apices slightly depressed, anal fimbria fulvous.

**subtilis** Sm.

- Abdomen finely roughened, impunctate, apical margins of segments depressed and narrowly testaceous, anal fimbria fuscous; cheeks in male subtriangular, the angle opposite the middle of the eye...**erythronii** Rob.  
 24. Segments 3-5 with thin bands of long white hairs, anal fimbria bright orange fulvous; male with the pubescence on thorax with fulvous tint, and hair at apex of abdomen yellowish or nearly white.

**subaustralis** Ckll.

25. Abdomen with well-defined hair bands..... 26.  
 Abdomen without well-defined hair bands ..... 32.  
 26. General color blue-black; anal fimbria dirty white, the abdomen of male bluish, the apex not densely tufted..... **geranii** Rob.  
 General color nigro-æneous, anal fimbria rufo-fuscos..... **candida** Sm.  
 General color greenish, with blue and purple reflections..... 27.  
 27. Face of ♂ without yellow markings..... 31.  
 Face of ♂ with whitish yellow markings..... 28.  
 28. Females ..... 29.  
 Males..... 30.  
 29. Fovea narrow; clypeus bare, convex, metallic; enclosure rugose; cell III long ..... **personata** Rob.  
 Fovea broad; clypeus more pubescent, flatter, not metallic; enclosure less rugose; cell III shorter..... **ziziae** Rob.  
 30. Antennæ short, joint 3 nearly equalling 4 and 5 together; clypeus rather flat, whitish; sometimes with a whitish dot on each side of face.

**ziziae** Rob.

- Antennæ long, joint 3 no longer than 4; clypeus convex, whitish, as well as a spot on each side of face ..... **personata** Rob.  
 31. Robust, enclosure of metathorax narrow, the scutel not purplish.

**polemonii** Rob.

- Slender, enclosure of metathorax broad, the scutel purplish.  
**illinoiensis** Rob.  
 32. Abdomen strongly and closely punctured ..... **cerasifolii** Ckll.  
 Abdomen impunctate, shining..... 33.  
 33. Anal fimbria black; the pubescence of face also black.

**nigrocaerulea** Ckll.

- Anal fimbria brownish; the pubescence of face mostly pale..... 34.  
 34. Pubescence of thorax ochraceous, on metathorax black..... **caerulea** Sm.  
 Pubescence of thorax white, the few black hairs inconspicuous.

**territa** Ckll.

35. Insects with whitish or yellowish face marks ..... 36.  
   Insects without such face marks ..... 64.
36. Females ..... 37.  
   Males ..... 40.
37. Spot of lemon yellow on each side of face ..... 38.
38. Clypeus dark, apical margins of abdominal segments pale testaceous  
     **pulchella** Rob.  
     Clypeus in part or wholly yellow ..... 39.
39. Clypeus pale lemon yellow with sides black; with semicircular spot on sides  
     of face below the eyes ..... **Aliciarum** Ckll.
- Clypeus entirely yellow, apical margins of abdominal segments provided  
     with narrow fasciae of white pubescence ..... **Aliciae** Rob.
- Sometimes with a yellow spot on clypeus, in the median line not far from the  
     anterior edge ..... **Kincaidii** Ckll.
40. With both the clypeus and a spot on each side of face white or yellowish ..... 41.  
     With clypeus alone light colored ..... 52.
41. Abdomen impunctate, the surface finely tessellate ..... 42.  
     Abdomen distinctly punctured ..... 44.
42. Very small, not over 6 mm. long, the face marks whitish.  
     **personata** Rob.  
     Larger, between 7 and 9 mm., face marks yellow or yellowish ..... 43.
43. Thorax with sparse, feeble punctures, its pubescence dirty white.  
     **asteris** Rob.  
     Thorax minutely tessellate, with strong quite numerous punctures, its pubes-  
     cence pale ferruginous ..... **Cragini** Ckll.
44. Clypeus wholly light colored, except anterior edge and the usual two dots;  
     vernal species ..... 46.
- Clypeus with more or less black; autumnal species ..... 45.
- Clypeus sometimes with a small yellow spot, also one such spot on each side  
     of face ..... **violae** Rob.
45. Sides of clypeus black, wings dusky at apex, first two abdominal segments  
     with orange-fulvous bands ..... **Aliciarum** Ckll.
- Anterior margin of clypeus broadly black, wings clear ..... **pulchella** Rob.
46. Face markings lemon yellow ..... 47.  
     Face markings cream color ..... 50.
47. Joint 3 of antennæ shorter than 13, about at long as 5, entire apical margin  
     of clypeus black, lateral face marks small or wanting ..... **dubia** Rob.
- Joint 3 of antennæ as long as 13, and as long as 4 and 5 together ..... 48.
48. Pubescence orange fulvous. Sometimes with a supraclypeal light patch.  
     Antennæ dark. Wings a little dusky at tips ..... **kansensis** Ckll.
- Pubescence dull white ..... 49.
49. Middle of anterior margin of clypeus black, lateral face marks large.  
     **Cressoni** Rob.  
     Entire apical margin of clypeus black, lateral face marks small or wanting.  
     **Bridwellii** Ckll.
50. Length 12 mm., flies in June ..... **rudbeckiae** Rob.  
     Length not over 8 mm., fly in March and April ..... 51.
51. Larger, flagellum dark ..... **capricornis** Casad. & Ckll.  
     Smaller (6 mm.), flagellum ferruginous ..... **primulifrons** Casad.

52. Larger species (10-12 mm.) ..... 53.  
 Smaller species (5-9 mm.) ..... 58.
53. Stigma comparatively small ..... 54.  
 Stigma normal ..... 55.
54. Wings clear hyaline; abdomen minutely tessellate ..... **Barberi** Ckll.  
 Wings whitish; abdomen rather finely punctured, the apical portions of segments rather broadly pale testaceous ..... **helianthi** Rob.
55. Abdomen without punctures, the head of moderate width ..... **Aliciae** Rob.  
 Abdomen punctured, the head rather large ..... 56.
56. Head broader than thorax, the apical margins of abdominal segments broadly pale testaceous ..... **reflexa** Cress.  
 Head and thorax about equal in width ..... 57.
57. Abdomen covered with fine, short, appressed hairs which form bands on segments 4 and 5 ..... **fracta** Casad. & Ckll.  
 Abdomen without hair bands, flies late in the spring ..... **Kineaidii** Ckll.
58. Pubescence on thorax ochraceous or pale fulvous ..... 59.  
 Pubescence on thorax gray or white ..... 60.
59. Head and thorax clothed with ochraceous pubescence ..... **clypeolata** D. T.  
 Pubescence on head and thorax inclining to fulvous ..... **sentellata** D. T.  
 Clypeus with a large trilobed yellow spot ..... **kriegiana** Rob.
60. Flagellum of antennae testaceous or ferruginous beneath ..... 61.  
 Flagellum of antennae darker, brown or black beneath ..... 63.
61. Nerves brown. Segments 2-4 of abdomen with very distinct white bands. .... **simulata** Prov.  
 Nerves of wings lighter, honey yellow or testaceous ..... 62.
62. Cheeks narrow, convex, regularly rounded; enclosure unusually broad and rough; abdomen finely sparsely punctate; clypeus yellow. .... **Robertsonii** D. T.  
 Cheeks broad, flat, subtriangular, with rounded angles behind middle of eye; enclosure small, finely rugose, except basal middle; abdomen almost impunctate; clypeus and sometimes spot on each side of face yellow. .... **bipunctata** Cress.
63. Clypeus chrome yellow; abdomen finely punctate, flies in spring. .... **Trevoris** Ckll.  
 Clypeus pale yellow; abdomen impunctate, flies in the fall. .... **solidaginis** Rob.
64. Abdomen without well defined hair bands ..... 65.  
 Abdomen provided with more or less complete hair bands ..... 120.
65. Abdomen smooth, shining, almost without pubescence ..... 66.  
 Abdomen more or less thickly and evenly covered with pubescence ..... 109.
66. Pubescence entirely black ..... 67.  
 Pubescence more or less fulvous, ochraceous, testaceous or cinereous ..... 70.
67. Thorax with the pubescence dense, hiding the surface ..... 68.  
 Thorax with the pubescence rather sparse, not hiding the surface ..... 69.
68. Insects larger (17½ mm. in length); wings purplish fuliginous. .... **valida** Say.  
 Insects smaller (13 mm.); wings smoky red ..... **nigra** Prov.
69. Wings dusky hyaline; abdomen closely and finely punctured. .... **nigerrima** Casad.  
 Wings yellowish hyaline, abdomen practically impunctate. .... **Porterae** Ckll.

70. Pubescence quite dense on face and thorax above..... 71.  
 Pubescence rather thin when compared to that of the species belonging to  
 the alternate section..... 86.
71. With bright ferruginous or fulvous pile ..... 72.  
 With the pubescence paler—some shade of testaceous, light ochraceous, gray  
 or white..... 76.
72. Robust, rather large species (12-17 mm.), with thoracic pubescence quite  
 dense ..... 73.  
 More slender smaller species (10-12 mm.), with the thoracic pubescence  
 slightly less dense, ochraceous..... 83.
73. Occiput and thorax above with ferruginous pubescence; anal fimbria black.. 74.  
 Face, cheeks, occiput and thorax above with such pubescence; anal fimbria  
 fulvus ..... 75.  
 Occiput and thorax above with fulvous pubescence; anal fimbria sooty black  
 intermixed with ferruginous hairs..... **nivalis** Sm.
74. Larger (14-17 mm.); with a black-appearing band between the tegulae.  
**Hallii** Dunning.  
 Smaller (13 mm.); without blackish bands between the tegulae.

**semirufa** Ckll.

75. Smaller (13-14 mm.); wings yellowish hyaline..... **Belfragei** Cress.  
 Larger (15 mm.); wings reddish brown, with violaceous reflections.  
**obscuripennis** Sm.
76. Females ..... 77.  
 77. Insects moderately large and robust (12-14 mm.)..... 78.  
 78. Anal fimbria sooty..... 79.  
 Anal fimbria fulvous ..... 84.  
 79. Inclosure at base of metathorax strongly longitudinally plicate.

**cupreotineta** Ckll.

- Inclosure at base of metathorax at most roughened, not at all longitudinally  
 plicate ..... 80.  
 80. Abdomen rather free from hairs, smooth and shiny ..... 81.  
 Abdomen decidedly hairy throughout ..... 82.  
 81. Surface of abdomen smooth, polished; hairs on face and head black; the  
 facial grooves lined with a silvery down ..... **nigripes** Prov.  
 Surface of abdomen tessellate and well punctured; hairs on face and head  
 mixed with pale and black ..... 82.  
 82. Pubescence on the pleurae black; that on the face mixed with pale and black.  
**carlini** Ckll.

Pubescence on pleurae pale; that on face black only around the mouth.

**vicina** Sm.

83. Hair of face wholly black; area at base of metathorax more closely rugulose,  
 narrower; tubercle small and emarginate or binodulose at apex.

**anograe** Ckll.

Hair of face a little paler at sides and on occiput; area at base of metathorax  
 roughened, not plicate, rather broad and long; tubercle with sloping  
 sides and truncate at apex..... **pluvialis** Ckll.

84. Pubescence on thorax above and the pleurae fulvo-ochraceous.

**Dunningi** Ckll.

Pubescence on head, thorax and femora fulvous, brightest on scutellum.

**viciniformis** Rob.

Pubescence on head and thorax above ochraceous; abdomen with shallow punctures; anal fimbria obscure fulvous. Male smaller, but for most part with similar pubescence and clearer wings ..... **errans** Sm.

85. Pubescence ochraceous only on mesothorax, scutellum and postscutellum.

**Merriami** Ckll.

Pubescence on mesothorax, scutellum, postscutellum, metathorax, upper part of pleura and on first and base of second abdominal segments ochraceous ..... **washingtoni** Ckll.

86. The pubescence quite uniformly fulvous or reddish ochraceous ..... 87.

The pubescence paler, some shade of light ochraceous, gray or white ..... 89.

87. The pubescence on head and thorax rather short, reddish brown; the anal fimbria purplish brown ..... **radiatula** Ckll.

The pubescence on head moderately long ..... 88.

88. Enclosure of metathorax without salient rim, minutely roughened.

**pruni** Rob.

Enclosure of metathorax decidedly rugose ..... **corni** Rob.

89. Males ..... 90.

Females ..... 98.

90. Head quite large, as wide or wider than thorax, and with cheeks strongly produced back of the eyes ..... 91.

Head of only moderate width, and with the cheeks normal ..... 93.

91. Size small ( $6\frac{1}{2}$  mm.); apical margins of abdominal segments testaceous.

**Provancheri** D. T.

Size large (9-11 mm.); apical margins of abdominal segments not testaceous ..... 92.

92. Pubescence on head and thorax silky grayish white, very copious; an abdomen present only on the first and second segments, very short, most conspicuous on sides ..... **mesillae** Ckll.

Pubescence on head and thorax very dense, long, mouse colored; an abdomen thin and sparse, with short black hairs on dorsum of segments 2-5.

**perarmata** Ckll.

93. Apical margins of abdominal segments narrowly testaceous ..... 94.

Apical margins of abdominal segments black or concolorous ..... 95.

94. The face almost naked, the punctuation fine and quite close.

**convexa** Prov.

The pubescence on clypeus long and dense; apex of abdomen with a few gray hairs ..... **vestita** Prov.

95. Body quite closely and moderately coarsely punctured; the face nearly bare ..... 96.

Body less closely and more minutely punctured; the clypeus provided with a more or less dense beard ..... 97.

96. Wings rather strongly infuscated; length 8-10 mm. .... **crataegi** Rob.

Wings hyaline, iridescent; length 7 mm. .... **salicis** Rob.

97. Inclosure bounded by rim strongly rugose, the wings hyaline, iridescent.

**Marie** form **concolor** Rob.

Inclosure defined by impressed line, granular; wings faintly clouded at apex ..... **algida** Sm.

98. Enclosure of metathorax with the surface not strongly rugose nor provided with ridges..... 99.  
 Enclosure of metathorax with the surface strongly rugose or at least provided with definite ridges..... 102.
99. Anal fimbria brownish or gray..... 100.  
 Anal fimbria fulvous..... 101.
100. Head and thorax covered with long gray pubescence; the enclosure microscopically tessellate..... **Birtwelli** Ckll.  
 Head and thorax covered with yellowish pubescence; the enclosure granular (?)..... **convexa** Prov.
101. Head and thorax covered with long white pubescence, the latter almost bare dorsally; the enclosure slightly depressed, not so coarsely sculptured as the integument behind it..... **delta** Vier.  
 Head and thorax covered with whitish pubescence, tinged above with yellow; the enclosure granular..... **rufosignata** Ckll.
102. The enclosure bounded by a well defined ridge..... 103.  
 The enclosure not bounded by a definite ridge or wall..... 104.
103. Pubescence on thorax moderately long; fimbria brownish.
- Mariae** form **concolor** Rob.
- Pubescence short and feathery; fimbria fulvous..... **nuda** Rob.
104. Smaller species (8 mm.). Apical margins of abdominal segments pale testaceous..... **krigiana** Ckll.  
 Larger species (10-12 mm.)..... 105.
105. Surface of enclosure strongly rugose..... 106.  
 Surface of enclosure more or less regularly ridged..... 107.
106. The pubescence on head and thorax in female ochraceous, to fulvous in male.  
 Face in front of ocelli striate..... **cratægi** Rob.  
 The pubescence on head and thorax pale; the face before ocelli smooth, shining and sparsely but definitely punctured..... **heraclei** Rob.
107. Smaller (10 mm.). Enclosure of metathorax provided with small vermiciform plications..... **Sigmundi** Ckll.  
 Larger (12 mm.)..... 108.
108. Enclosure irregularly subreticulately ridged..... **subcommoda** Ckll.  
 Enclosure with the basal area finely striate..... **commoda** Sm.
109. Pubescence on abdomen paler, either grayish or fulvous..... 110.  
 Pubescence on abdomen at least in part black..... 118.
110. Females..... 111.  
 Males..... 113.
111. Larger (13-15 mm.). The abdomen clothed with pale pubescence, which often forms thin apical fascie..... **Sayi** Rob.  
 Smaller (9-10½ mm.)..... 112.
112. Head and thorax above with pale fulvous pubescence; that on abdomen of the same color, short and thinly scattered, most dense towards apex.
- victima** Sm.
- Head and thorax above with pale whitish yellow pubescence; the abdomen thinly covered with hoary pubescence; fimbria fulvous.
- mœsta** Sm.
113. Larger (9-12 mm.). Head broader than thorax..... 114.  
 Smaller (8 mm.). Enclosure scarcely rugulose, not marginated..... 115.

114. Enclosure of metathorax rather coarsely reticulated. Pubescence as in female, only somewhat longer ..... **Sayi** Rob.  
 Abdomen clothed with short scattered pale pubescence, dense and ochraceous at apex ..... **brunniventris** Cress.
115. Head without black hairs ..... 116.  
 Head provided with black hairs on vertex and about margins of eyes ..... 117.
116. Head subquadrate above, pubescence on face and cheeks long and white.  
 Abdomen shining, with thinly scattered hoary pubescence.
- mœsta** Sm.
117. Abdomen with the first and second segments clothed above with long whitish hairs, those on remaining segments sparser and confined to the lateral margins ..... **frigida** Sm.  
 Abdomen shining, provided with a thin scattered griseous pubescence and with a few silvery hairs at the extreme tip ..... **hirticeps** Sm.
118. Pubescence on abdomen entirely black ..... 119.  
 Pubescence on basal half of abdomen whitish, on apical half black, that on thorax rufescent ..... **impuncta** Kby.
119. Hair on sides of face, about eyes, and on vertex pale; 2nd and 3rd submarginal cells subequal; abdomen with short dark pubescence.
- vieiniiformis** Rob.
- Hair on face, vertex and cheeks black, on sides of face and occiput pale; on pleura black; area of metathorax roughened, not plicate.
- pluvialis** Ckll.
- Hair on sides of face, front and cheeks black; 2nd and 3rd submarginal cells markedly unequal ..... **carlini** Ckll.  
 Hair on face wholly black, area more coarsely rugulose than preceding.  
 The pubescence on thoracic dorsum brighter, more fulvous.
- anograe** Ckll.
120. Pubescence quite long, dense and copious throughout; erect or scarcely decumbent, even on abdomen where forming bands ..... 121.  
 Pubescence on abdomen rather short, and for the most part decumbent, at least when forming bands ..... 126.
121. Entire pubescence golden yellow, that on all segments forming complete bands ..... **auricoma** Sm. ♂.  
 Pubescence variable in color ..... 122.
122. That on thorax and scutellum above bright orange red.
- chromatricha** Ckll.
- That on thorax and scutellum above pale yellow or ochraceous ..... 123.  
 123. Anal fimbria yellowish or reddish ..... 124.  
 Anal fimbria fuscos or black ..... 125.
124. Pubescence on thorax lemon yellow, on abdomen pale ochraceous; anal fimbria fulvous ..... **permritis** Cress.  
 Larger (12½ mm.). Pubescence on thorax pale yellow, whitish on abdomen, anal fimbria yellowish ..... **mentzeliae** Ckll.  
 Smaller (♀ 8. ♂ 7½ mm.). Pubescence long, yellow ochraceous, forming bands on apical margins of abdominal segment; anal fimbria ochraceous ..... **miserabilis** Prov.
125. Pubescence lemon yellow, that on apex of abdomen mostly black.
- hirticineta** Prov.

Pubescence cream colored, on the middle and hind tibiae pale; facial quadrangle about as broad as long; fimbria fuscous. **apacheorum** Ckll.  
Pubescence ochraceous, that on middle and hind tibiae dark fuscous; facial quadrangle a little broader than long; fimbria fuscous.

**americana** D. T.

126. Insects rather small, less than 8 mm. in length ..... 127.  
Insects larger, 8 mm. or more in length ..... 144.  
127. Females ..... 128.  
Males ..... 135.  
128. Anal fimbria white or whitish ..... 129.  
Anal fimbria ochraceous, fulvous or fuscous ..... 131.  
129. Head and thorax clothed with pale yellow pubescence. Wings hyaline, the nervures brown. Stigma pale and surrounded by a brown line.

**canadensis** D. T.

- Head and thorax clothed with rather long grayish white pubescence.  
Wings with the stigma light brown ..... 130.  
130. Abdomen with complete dense bands of white pubescence.

**albovirgata** Ckll.

Abdomen with the hair bands on segments 1 and 2 interrupted.

**primulifrons** Casad.

131. Fimbria ochraceous; the pubescence long and of the same color. Wings yellowish-hyaline, iridescent, faintly dusky at tips and with the nervures and stigma honey-yellow ..... **miserabilis** Cress.  
Fimbria fulvous or subfuscous ..... 132.  
132. Wings with their apices decidedly clouded ..... 133.  
Wings with their apices not clouded ..... 134.  
133. Area at base of metathorax large, coarsely reticulated.

**Robertsonii** D. T.

Area at base of metathorax not especially large, shortly rugose at base.

**nebula** Sm.

134. Area at base of metathorax bounded by an impressed line, finely roughened.  
Cheeks rather strongly produced behind the eyes.

**nothoscordi** Rob.

Area of base of metathorax hardly at all defined, roughened.

**melanochroa** Ckll.

135. Wings distinctly clouded apically ..... 135.  
Wings hyaline, their apices not at all clouded or infuscated ..... 140.  
136. Inclosure of metathorax finely roughened, more coarsely so at the base.  
Apical margins of abdominal segments pale testaceous, the hair bands white, very thin ..... **nebula** Sm.  
Inclosure of metathorax rather coarsely and longitudinally reticulate ..... 137.  
137. Pubescence of head and thorax fulvous ..... 138.  
Pubescence on head and thorax ochraceous; that on apical margins of segments 2-4 also ochraceous. Wings yellowish-hyaline, iridescent.

**miserabilis** Cress.

138. Fasæ on abdominal segments 3 and 4 continuous. Inclosure bounded by a raised rim ..... **rugosa** Rob.  
Fasæ on abdominal segments 2 to 4 interrupted. Inclosure poorly defined laterally, but terminating in a sharp edge at truncation ..... 139.

139. Metathorax on each side of inclosure coarsely reticulated and nearly bare, nervures and stigma dark..... **obscura** Rob  
 Metathorax on each side of inclosure rather finely rugose and closely pubescent ..... **hippotes** Rob.
140. Head large; the cheeks broad and more or less angulated behind..... 141.  
 Head of moderate size; the cheeks narrower and less distinctly angulate behind ..... 142.
141. Cheeks strongly produced behind the eyes and bordered by a carina or ridge. Inclosure of metathorax large and rather coarsely reticulated.  
**platyparia** Rob.  
 Cheeks broad, with a rounded angle at point opposite and but a little below middle of eyes. Inclosure of metathorax finely roughened.  
**geranii** form **maculata** Rob.
142. Inclosure of metathorax rather strongly reticulated. Hair bands on abdomen almost obsolete. Face narrowed below ..... **Nasoni** Rob.  
 Inclosure of metathorax longitudinally striate or ridged ..... 143.
143. Head and thorax with short, pale, fulvous pubescence. Bands on apex of abdominal segments 2-4, interrupted on 2..... **claytoniae** Rob.  
 Head and thorax with long whitish pubescence, especially abundant on clypeus. Eyes wider apart below than above. .... **erigeniae** Rob.
144. Males..... 145.  
 Females ..... 158.
145. Larger, 10 mm. and over..... 146.  
 Smaller, 7 mm. to 9 mm. .... 147.
146. Wings clear hyaline, the nervures and stigma brown. Pubescence silky grayish white, long on head and thorax; bands on abdomen at apex of segments, interrupted and poorly defined.. **electrica** Casad. & Ckll.  
 Wings hyaline, the apex broadly dusky. Pubescence yellow ochraceous, long and dense. Apical margins of segments subtestaceous and furnished with bands of short dense yellowish pubescence.  
**texana** Cress.
147. Pubescence on head and thorax more or less fulvous or rufous..... 148.  
 Pubescence on head and thorax whitish, ochraceous, or at most brownish white ..... 151.
148. Wings somewhat infuscated or clouded apically..... 149.  
 Wings hyaline or at most smoky-hyaline..... 150.
149. Head and thorax clothed with a thin pale pubescence, inclining to rufous on clypeus and mesonotum. The fasciae on abdomen interrupted.  
**hippotes** Rob.
- Head and thorax clothed with short fulvous pubescence. Nervures and stigma testaceous ..... **Forbesii** Rob.
150. Nervures and stigma very dark brown. Fasciae on abdominal segments 2-4 orange-rufous, that on 4 entire ..... **salicifloris** Ckll.  
 Nervures and stigma testaceous. Abdominal segments 2-4 with narrow fasciae, interrupted on 2 and 3 ..... **spiræana** Rob.
151. Head and thorax with pubescence brownish white. Wings hyaline, the nervures piceous, stigma pale brown, marginal with piceous. Abdomen with interrupted fasciae ..... **Knuthiana** Ckll.  
 Head and thorax with the pubescence whitish or pale yellow..... 152.

152. Head larger, broader than thorax, strongly produced behind the eyes. .153.  
 Head moderate, not strongly produced behind the eyes.....155.  
 153. Wings smoky-hyaline, tinged brownish, nervures and stigma brown. Mandibles toothed within. Thin hair bands on segments 5 and 6.

**platyparia** form **occidentalis** Ckll.

Wings hyaline, nervures and stigma honey-yellow. Mandibles long, slender, the extreme base toothed below.....154.

154. Joint 3 of antennæ about equal to 5.....**mandibularis** Rob.  
 Joint 3 of antennæ about equal to 4 + 5.....**tridens** Rob.

155. Wings hyaline, iridescent, the nervures and stigma testaceous. Abdomen covered above with hairs ..156.

Wings not iridescent, either hyaline or smoky.....157.

156. Inclosure at base of metathorax not margined and scarcely rugulose. Abdominal fasciae almost obsolete.....**mœsta** Sm.

Inclosure at base of metathorax bounded by an impressed line, rather dull and minutely roughened. Hind margins of segments with thin white hair bands. Antennæ wholly black, moniliform.

**monilicornis** Ckll.

157. Nervures and stigma pale yellow. Apex of abdominal segments somewhat depressed, testaceous, and more or less covered with pale hair bands.

**maeilenta** Prov.

Nervures and stigma brown or ferruginous.....158.

158. Pubescence on head and thorax long, white or pale yellow. Fasciae of long white hairs on abdominal segments. Stigma ferruginous.

**distans** Prov.

Pubescence on head and thorax white, more or less mixed with black on vertex and about antennæ. Stigma very dark brown.

**segregans** Ckll.

159. Larger, usually 12 or more mm. in length.....160.  
 Medium, between 10 and 12 mm. in length.....172.

Smaller, between 8 and 10 mm. in length.....193.

160. Stigma of anterior wing abnormally small. Pubescence throughout abundant and of moderately uniform length.....161.  
 Stigma of anterior wing normal. Pubescence variable.....165.

161. Anal fimbria sooty. Abdominal fasciae white, that on 1 interrupted, on 2-4 continuous.....**Barberi** Ckll.

Anal fimbria yellowish or fulvous. Abdominal fasciae more or less ochraceous.....162.

162. Wings milky white, the nervures and stigma dark ferruginous. Abdomen with thin fasciae on segments 2-4 .....**Graenicheri** Ckll.

Wings more or less hyaline.....163.

163. Apical margins of abdominal segments testaceous.....164.  
 Apical margins of abdominal segments concolorous. Wings smoky, their apical margins clouded, nervures dark ferruginous. Fimbria reddish ochraceous.....**nitidor** Ckll.

164. Wings clear hyaline, the nervures and tegulae pale testaceous. Fimbria pale fulvous.....**helianthi** Ckll.

Wings fulvo-hyaline, apical margins clouded, nervures testaceous. Fimbria golden-yellow ..**rundbeckiae** Rob.

165. Pubescence for the most part fox-red, moderately long and dense. Segments 2-4 with apical hair bands of the same color.....\***vulpicolor** Ckll.  
 Pubescence fulvous, ochraceous or whitish, of variable length and density ..... 166.
166. Pubescence on head and thorax more or less fulvous ..... 167.  
 Pubescence on head and thorax cinereous or ochraceous ..... 169.
167. Wings yellowish-hyaline, nervures (except subcostal) and stigma ferruginous. Sides of abdominal segments 2-4 with pubescence on hind margins. Fimbria purplish or fuscous ..... **Macgillivrayi** Ckll  
 Wings subhyaline, with the apex clouded; nervures rufo-testaceons ..... 168.
168. Pubescence on face pale fulvous, darker on thorax. Apical margins of abdominal segments provided laterally with narrow fringe of pale pubescence ..... **hilaris** Sm.  
 Pubescence on thorax fulvous. Abdomen at the sides and towards apex with fine gray pile. Apical margins of segments rufo-testaceous ..... **perplexa** Sm.
169. Abdomen thinly covered above with hoary pubescence, the apical margins of the segments beneath fringed with the same. Wings hyaline, iridescent ..... **moesta** Sm.  
 Abdomen provided with well-defined hair bands ..... 170.
170. Wings clear hyaline, the nervures and stigma brown. Abdominal fasciae very distinct, all continuous. Fimbria chocolate color.  
**electrica** Casad. & Ckll.  
 Wings with the apex clouded ..... 171.
171. Pubescence on head and thorax short, pale gray. Fimbria orange-fulvous.  
 Wings strongly yellowish basally ..... **fracta** Casad. & Ckll.  
 Pubescence on head and thorax long, dense, cinereous. Fimbria cinereous.  
 Wings hyaline ..... **veraenuda** Cress.
172. Anal fimbria lighter, white, gray, ochraceous or orange ..... 173.  
 Anal fimbria darker, various shades of brown or black, as ferruginous, fulvous, rufous, fuscous, etc ..... 176.
173. Pubescence on head and thorax brownish ochraceous. Abdomen with patches of grayish white pubescence on sides of segments 2-4. Fimbria reddish-orange ..... **salicifloris** Ckll.  
 Pubescence on head and thorax grayish or cinereous. Abdomen with continuous hair bands ..... 174.
174. The pubescence thin. Hair bands of abdomen long and thin at margins of segments. Fimbria ochraceous ..... **macoupinensis** Rob.  
 The pubescence dense. Hair bands also quite dense ..... 175.
175. Smaller, 10 mm. in length. Fimbria whitish. Wings faintly hyaline, tinged with yellowish ..... **imitatrix** Cress.  
 Larger, 11-12 mm. Fimbria cinereous. Wings hyaline, apical margin dusky. **vereecunda** Cress.
176. Pubescence at least on head and thorax above fulvous ..... 177.  
 Pubescence paler, whitish ochraceous or cinereous ..... 183.

\* The descriptions of a few of these insects are so indefinite as to leave some room for doubt as to just where they should fall in the table. They may therefore be found in other sections also.

177. Faciae on abdominal segments widely interrupted..... 178.  
 Fasciae on abdominal segments white, more or less complete..... 179.  
 178. Insect clothed on thorax with long dense pubescence. The abdominal fasciae composed of fulvous hairs. Fimbria dark rufous.

**striatifrons** Ckll.

- Insects thickly clothed on thorax with short pubescence. The abdominal bands composed of whitish hairs, Fimbria fulvous..... **rugosa** Rob.  
 179. Hair band on segment 2 interrupted ..... 180.  
 Hair bands on segment 2, as well as on the others, complete ..... 181.  
 180. Wings hyaline, nervures and stigma honey-yellow. Fimbria pale fulvous.

**claytoniae** Rob.

- Wings hyaline, apical margins somewhat clouded, the nervures and stigma testaceous. Fimbria dull ferruginous ..... **quintilis** Rob.  
 181. Anal fimbria dull ferruginous. Pubescence on thorax short and thin.

**Forbesii** Rob.

- Anal fimbria fuscous..... 182.  
 182. Wings fusco-hyaline, apical margins a little clouded, nervures and stigma dull testaceous ..... **Cressonii** Rob.  
 Wings yellowish-hyaline, nervures (except black subcostal) and stigma ferruginous ..... **Macgillivrayi** Ckll.  
 183. Pubescence more or less ochraceous..... 184.  
 Pubescence white or whitish ..... 190.  
 184. Abdominal fasciae reduced to lateral patches..... 185.  
 Abdominal fasciae more or less complete..... 186.  
 185. The fasciae in the form of a fringe on the sides of segments 3 and 4. Fimbria fuscous ..... **placida** Sm.  
 The fasciae in the form of well-marked patches of white hair on the lateral margins of segments 2-4. Also some scattered glistening yellow hairs across middle of 3 and 4. Segment 5 and fimbria fulvous.

**grandior** Ckll.

186. The fasciae white..... 187.  
 The fasciae obscure, grayish or yellowish ..... 188.  
 187. The pubescence on head and thorax thin and pale ochraceous. Fascia on 2 interrupted. Fimbria fuscous ..... **arabis** Rob.  
 The pubescence long and dense, ochraceous on dorsum of thorax, elsewhere whitish. Fasciae on 2-4 complete. Fimbria gray-brown.

**sappononis** Ckll.

188. The cheeks strongly produced behind the eyes. Mandibles long and slender, toothed below at extreme base. Abdominal segments with obscure fasciae on their pale testaceous edges. Fimbria fuscous.

**mandibularis** Rob.

- The cheeks normal, not strongly produced behind the eyes..... 189.  
 189. Abdomen with very distinct pale gray hair bands, all continuous. Wings clear hyaline, nervures, stigma and tegulae brown.

**electrica** Casad. and Ckll.

- Abdomen with dense apical fasciae of yellowish pubescence on segments 2-4. Wings yellowish-hyaline, nervures, stigma and tegulae dull honey-yellow..... **violae** Rob.

190. Abdominal segments 2-4 with pale testaceous margins and thin white hair bands. Fimbria blackish ..... ***salieacea*** Rob.  
 Abdominal segments without testaceous margins ..... 191.
191. Fasciae all interrupted, dense and white on segments 2-4. Basal nervures of wings somewhat curved ..... ***semipunctata*** Ckll.  
 Fasciae more or less complete. Basal nervure normal ..... 192.
192. Segments 2-4 with thin fasciae of white on the broadly depressed apical margins ..... ***asteris*** Rob.  
 Segments 2-4 normal, their fasciae snow-white; that on 2 interrupted ..... ***prunifloris*** Ckll.
193. Pubescence on head and thorax above darker, more or less fulvous or blackish ..... 194.  
 Pubescence on head and thorax above pale, more or less white, gray, yellow or ochraceous ..... 203.
194. Head and thorax with considerable of the pubescence black. Abdominal segments 2-4 with lateral apical bands of white pubescence. Wings smoky ..... 195.  
 Head and thorax above with the pubescence chiefly fulvous ..... 196.
195. Head broad, the cheeks large and shining. Basal joint of hind tarsi narrower than the other. Fimbria silvery gray ..... ***parnassiae*** Ckll.  
 Head narrower. Basal joints of hind tarsi broad. Fimbria quite dark dull gray ..... ***Peckhami*** Ckll.
196. Abdominal fasciae fulvous ..... 197.  
 Abdominal fasciae white or pale ..... 198.
197. Wings fulvo-hyaline, the nervures, stigma and tegulae rufotestaceous. Abdomen with silken gloss. Fimbria ferruginous. ***fulvipennis*** Sm.  
 Wings yellowish-hyaline, faintly clouded beyond the marginal cell; nervures and stigma honey-yellow. Fimbria brown ..... ***salicis*** Rob.
198. Segments 2 and 3 at the sides with apical pubescence. The margins obscurely rufo-piceous. Fimbria rufo-piceous ..... ***integra*** Sm.  
 Segments 2-4 with their fasciae more or less complete ..... 199.
199. Hair bands dense, moderately wide, interrupted on segment 2 ..... 200.  
 Hair bands thin and narrow ..... 201.
200. Fasciae white. Fimbria chocolate brown. Wings yellowish, faintly dusky at apex ..... ***medionitens*** Ckll.  
 Fasciae ochraceous. Fimbria brownish ochraceous. Wings slightly yellowish, the stigma and nervures largely testaceous ..... ***paeta*** Vier.
201. Apical margins of segments narrowly testaceous. Fimbria fuscous. ***scutellata*** D. T.  
 Apical margins of segments concolorous. Fimbria fuscous ..... 202.
202. Wings hyaline, iridescent, slightly clouded at apex; nervures and stigma ferruginous. Abdominal fasciae sometimes interrupted on 2 and 3. ***miranda*** Sm.  
 Wings hyaline, nervures and stigma testaceous. Abdominal fasciae interrupted on 2 and 3 ..... ***spiraeana*** Rob.
203. Thorax with ochraceous pubescence ..... 204.  
 Thorax with light yellow or grayish pubescence ..... 206.
204. Abdominal segments provided with conspicuous white hair bands, interrupted on 1. Wings smoky, nervures dark brown. ***clypeonitens*** Ckll.

- Abdominal segments 2-4 provided with narrow hair bands.....205.  
 205. Wings hyaline, nervures and stigma testaceous. Fimbria ochraceous.  
***lauracea*** Rob.  
 Wings subfuscous, the apex faintly clouded, nervures dark brown, stigma slightly paler. Fimbria dark brownish.....***truncata*** Vier.  
 206. Anal fimbria lighter, dirty white, yellowish or pale ochraceous.....207.  
 Anal fimbria darker, ferruginous-fuscous, fulvous or brownish.....213.  
 207. Fimbria yellowish or ochraceous. Abdominal segments narrowly testaceous at apex.....208.  
 Fimbria dirty white. Abdominal segments with their apices only in part testaceous.....209.  
 208. Apex of abdominal segments provided with narrow fasciae of white pubescence. Fimbria pale ochraceous. Inclosure bounded by a raised line, rather strongly reticulated.....***Nasonii*** Rob.  
 Apex of abdominal segments with bands of dirty white hairs, interrupted on 2. Fimbria yellowish. Inclosure with very obscure rim, punctured like the part beyond.....***salicinella*** Ckll.  
 209. Wings with the apex quite noticeably smoky. Abdomen with apical bands of long white pubescence, thin on 1, dense on 2-5.  
***xanthigera*** Ckll.  
 Wings with the apex not noticeable dusky.....210.  
 210. Wings hyaline, the nervures and stigma pale yellow. Segments 2-4 with more or less complete bands.....211.  
 Wings hyaline or subhyaline, the nervures brown or fuscous. Tips of abdominal segments not noticeably testaceous.....212.  
 211. Abdomen black, apical margins of segments markedly testaceous.  
***macilenta*** Sm.  
 Abdomen pale brown, apical margins not markedly lighter colored.  
***trizonata*** Ashm.  
 212. Abdominal segments 2-4 with fringe of long white hair, interrupted on 2. Length 9 mm.....***distans*** Prov.  
 Abdominal segments 2-4 with apical fasciae of dirty white hairs. Length 8 mm.....***aliena*** Sm.  
 213. Fasciae on abdominal segments incomplete or interrupted in the middle.....214.  
 Fasciae on abdominal segments at least in part complete.....218.  
 214. Wings with a decidedly yellowish tinge.....215.  
 Wings not decidedly yellowish.....216.  
 215. Abdominal segments 1-4 with lateral hair bands. Fimbria fulvous.  
***multiplicata*** Ckll.  
 Abdominal segments 2-4 with interrupted fasciae of sparse white hair. Fimbria brownish.....***atala*** Vier.  
 216. Anal fimbria pale fulvous.....***hippotes*** Rob.  
 Anal fimbria sooty or brownish.....217.  
 217. Pubescence on thorax above brownish white. Wings with nervures piceous, the stigma pale brown, marginal with piceous. Fimbria dark purplish gray.....***Knuthiana*** Ckll.  
 Pubescence on thorax above pale ochraceous. Wings subfuscous, the apex faintly clouded, the nervures dark brown, stigma slightly paler. Fimbria brownish dark.....***truncata*** Vier.

218. Pubescence darker, on cheeks, top of head and thorax, above dull fulvous.  
 Fimbria brownish ..... ***beulahensis*** Vier.
- Pubescence lighter, whitish, yellowish or pale ochraceous ..... 219.
219. Triangle at base of thorax finely roughened or granulated ..... 220.
- Triangle at base of thorax rather strongly reticulated or longitudinally pli-  
 cate or rugose
220. Pubescence on head and thorax grayish yellow. Tips of segments testa-  
 ceous. Fimbria fulvous ..... ***frigida*** Sm.
- Pubescence on head and thorax white or dull white, without the yellowish  
 tinge ..... 221.
221. Wings yellowish, nervures brownish, the stigma deep honey yellow. Seg-  
 ments 1-4 with broad but very thin apical fasciae of dull white hairs.  
***apacheorum*** var. *a* Ckll.
- Wings smoky or smoky hyaline ..... 222.
222. These members hyaline ..... 223.
- These members more or less smoky ..... 224.
223. Nervures and stigma dull testaceous. Head broader than thorax; cheeks  
 broad and rounded. Abdominal fasciae thin, narrow, whitish, com-  
 plete ..... ***geranii maculata*** Rob.
- Nervures and stigma dark brown. Head normal. Abdominal fasciae on  
 segment 1 almost obsolete ..... ***segregans*** Ckll.
224. Wings faintly clouded apically. Abdominal fasciae interrupted on segments  
 1 and 2 ..... ***simplex*** Sm.
- Wings not clouded. Abdominal fasciae on 1 only interrupted.  
***solidaginis*** Rob.
225. Inclosure with its surface reticulated. Head large, broader than thorax,  
 the cheeks strongly and broadly produced behind the eyes, bordered  
 by a rim ..... ***platyparia*** Rob.
- Inclosure with its surface longitudinally ridged, plicate or striate ..... 226.
226. Pubescence rather long, quite abundant on head and thorax ..... 227.
- Pubescence sparse, the thorax above nearly bare. Abdominal segments  
 with apical margins narrowly testaceous and with fasciae of white  
 hairs on 2-4 ..... 228.
227. Apical margins of abdominal segments 2-4 fringed with white pubescence,  
 anal fimbria slightly fulvous ..... ***algida*** Sm.
- Apical margins of abdominal segments 1-4 fringed rather broadly with dirty  
 white pubescence. Fimbria inclining to fuscous ..... ***erigenae*** Rob.
228. Clypeus smooth, shining and impunctate, except on the sides. Mesothorax  
 with scarcely a trace of punctures ..... ***bipunctata*** Cress.
- Clypeus minutely tessellate and dull all over, with rather sparse shallow  
 punctures. Mesothorax with distinct though shallow and rather  
 sparse punctures ..... ***hartfordensis*** Ckll.
- 229.\* The prevailing color of entire insect blue or greenish. ..... 230.
- The prevailing color black, but in some instances the abdomen may be more  
 or less ferruginous ..... 231.
230. Steel-blue, sometimes tinged with dark green; the pubescence mostly pale,  
 male and female ..... ***chalybaea*** Cress.

This section, as represented in the present table, undoubtedly contains forms  
 that should be referred elsewhere.

- Shining blue-black, the pubescence entirely black, female; on cheeks, front, occiput and thoracic dorsum dull white, male ..... **Foxii** Ckll.
231. Females ..... 232.  
Males ..... 237.
232. Head and thorax black. The abdomen rufous or reddish ..... 233.  
Entire insect black ..... 234.
233. Abdomen ferruginous, with faint indications of apical hair bands on segments 2-4. Flies in spring ..... **andrenoides** form **bicolor** Rob.  
Abdomen mostly orange rufous, practically naked above, except on the apex which is strongly fringed with pale ochraceous hairs. Flies in fall,  
..... **pectidis** Ckll.
234. Pubescence throughout black ..... ..... **phenax** Ckll.  
Pubescence pale, or at most only a few black hairs intermingled with the prevailing light colored ones ..... 235.
235. Hind margins of abdominal segments furnished with uniform bands of dense, appressed white pubescence, the adjacent bases of the following segments with similar but thinner and narrower bands,  
..... **rhodocerata** Ckll.
- Hind border of abdominal segments with less conspicuous light hair bands ..... 236.
236. Smaller (8-9 mm.); the metathorax rather minutely granular; the wings yellowish fuliginous ..... ..... **andrenoides** Cress.  
Larger (9-10 mm.); the metathorax more rugose, and the wings clearer than the preceding ..... ..... **wellesleyana** Ckll.
237. Provided with yellow face marks ..... 238.  
Face wholly black ..... 241.
238. Clypeus, together with a portion of face, yellowish ..... 239.  
Clypeus alone yellow (7 mm.) ..... ..... **concinna** Ckll.
239. Clothed on head and thorax with rather long whitish pubescence, that on abdomen short and sub-erect ..... 240.  
Clothed on head and thorax with fulvous-yellow pubescence (7½ mm.),  
..... **nevadensis** Cress.
240. Clypeus somewhat bulging, smaller (8½ mm.) ..... ..... **andrenoides** Cress.  
Clypeus more flattened, larger (9 mm.) ..... ..... **wellesleyana** Rob.
241. Abdomen furnished with hair bands ..... 242.  
Abdomen without hair bands ..... 244
242. The head wider than the thorax, face narrowing below, flagellum rufous below ..... 243.  
Head not wider than the thorax. Abdomen clothed with short sub-erect pale pubescence mixed with black, apical margin of each segment with a regular narrow fascia of dense white pubescence (10 mm.),  
..... **regularis** Cress.
243. Larger (8-9 mm.); tarsi ferruginous, the wings slightly dusky toward apex,  
..... **rhodoerata** Ckll.
- Smaller (7-7½ mm.); legs wholly black, wings with the apex dusky hyaline and slightly milky ..... ..... **oliviae** Ckll.
244. Smaller (6½ mm.); wings hyaline, slightly dusky at tips,  
..... **nigrifrons** Cress.  
Larger (8 mm.); wings perfectly clear ..... ..... **enochi** Ckll.

The following normally three-celled species are also occasionally found in which one or both wings have but two submarginal cells: *bipunctata*, *claytoniae*, *hippotes*, *platyparia*, *robertsonii*, *solidaginis*, *personata*, *asteris*, *krigiana*, *milwaukeensis*, etc.

Since this table was finished, Dr. S. Graenicher, of Milwaukee, Wisconsin, has published a paper in the *Canadian Entomologist* (June, 1903, pp. 162-166), in which five additional species are described. As a remodelling of the table at this time is impracticable, it may suffice to indicate briefly where these new forms would fall:

The species *thaspii* Graen., ♀, will come in the vicinity of *frigida* Sm., or *lauracea* Rob., both of which it resembles in some respects. *Cockerelli* Graen., ♀, comes nearest *maconpinensis* Rob., from which it differs by having the facial foveæ black instead of pale, and the fimbria purplish instead of ochraceous. The male of *Cockerelli* may be compared with *perarmata* ♂, but lacks the tooth at base of mandibles of the latter. *Milwaukeensis* Graen., ♀, is nearest to *impuncta* Kby., but differs from it by having the pubescence on two basal segments of abdomen ochraceous to fulvous, instead of whitish. The male of this species has the pubescence entirely fulvous, and the head extremely broad. The *viburnella* Graen., ♀, will fall in the vicinity of *rufosignata* Ckll., and his *albofoveata* ♀ seems to come near *platyparia* Rob., and *hartfordensis* Ckll.